MONTGOMERY COUNTY EXECUTIVE REGULATION

Offices of the County Executive. 101 Monroe Street. Rockville, Maryland 20850

Subject: Adoption of the 2008 National Electrical Code	**Number: 15-09**
Originating Department: Department of Permitting Services	**Effective Date: March15, 2010**

Montgomery County Regulation on:

ADOPTION OF THE 2008 NATIONAL ELECTRICAL CODE

DEPARTMENT OF PERMITTING SERVICES

Issued by County Executive
Regulation # 15-09

Authority: Code Section 17-2 and 17-3
Supersedes: Executive Regulation No. 25-04
Council Review: Register Vol. 26 , Issue 8
Effective date: March 15, 2010
Sunset date: None

SUMMARY:
This regulation adopts the National Electrical Code, 2008 Edition, with local amendments. This regulation applies to all electrical equipment, installations and activities within the County.

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BACKGROUND:

This regulation supersedes Executive Regulation # 25-04 which adopted the 2002 edition of the National Electrical Code. This regulation adopts the 2008 edition of the National Electrical Code which is used nationwide. The 2008 National Electrical Code was issued by the National Fire Protection Association Standards Council on July 26, 2007 at its annual meeting held July 27, 2007, in Boston MA.

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Section 1.
In accordance with procedures authorized in Chapter 17, Sections 17-2 and 17-3, "Electricity," Montgomery County Code, 1994, as amended (the code), the following executive regulations apply to all electrical equipment, installations, and activities within Montgomery County.

Section 2.
This regulation adopts the 2008 edition of the National Electrical Code which is used nationwide. The 2008 National Electrical Code was issued by the National Fire Protection Association Standards Council on July 26, 2007 at its annual meeting held July 27, 2007, in Boston MA.

Section 3.
The 2008 NEC is adopted as the Electrical Code of Montgomery County, and all electrical Installations and equipment must meet the standards and requirements set forth in that code or in this regulation. The 2008 NEC is incorporated by reference as if that code were fully set forth with the following additions, deletions, and amendments.

Whenever the provisions of this regulation and those of the NEC are in conflict, the provisions of this regulation will govern and be enforced in the County. The Director is solely responsible for the interpretation of these regulations as amended.

Section 4.
ARTICLE 100 DEFINITIONS
Add the following definition after the definition of "Appliance," as provided in Article 100:
Appliance, Fixed: An appliance which is fastened or otherwise secured at a specific location.

Amend the definition of "Building" as follows:
Building: A structure which stands alone or which is separated from adjoining structures by fire walls conforming to the definition and requirements of ICC International Building Code for fire walls.

Section 4 is needed in order to link definitions in the IBC to the NEC. This is especially important in the safe installation of multiple services, for example in a strip mall.

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Section 5.
Section 210.5(c) add the following to article:
210.5 (C). Ungrounded Conductor. Where installed in raceways, as open work or as concealed knob-and-tube work. Ungrounded conductors must be identified by a color other than as specified in (A) or (B) above. All ungrounded conductors of the same color must be connected to the same ungrounded feeder conductor, and the conductors for systems of different voltages must be of different colors.

Exception. As permitted in Section 200.7.

For basic single- and three-phase wiring systems of 120/208/240 volts: 3-wire circuits must use1 black, 1 white, and 1 red wire; 4-wire circuits must use 1 black, 1 white, 1 red, and 1 blue wire. For basic single- and three-phase wiring systems of 277/480 volts, the colors gray, brown, orange, and yellow must be used in accordance with commonly accepted trade practices.

Section 5 is critical for safe and efficient installation and troubleshooting of electrical systems. Without a color standard for wiring, electricians would be faced with the time consuming task of identifying phases and lines all the time. Moreover, lack of a wiring color standard greatly increases the danger of explosion from connecting phases to each other.

Section 6.
Section 210.11. Add the following sentence:
Each fixed appliance must be served by an individual branch circuit except for electric baseboard heaters, appurtenant equipment to furnaces, such as humidifiers and electronic air cleaners, and other equipment having motors rated 1/4 hp or less.

Section 6 is to prevent overloading fixed appliance circuits and to allow disconnecting appliances for servicing without affecting the operation of other appliances and equipment.

Section 7.
Section 210.19(A) (3), Exception No 2. Delete and substitute the following:
Section 210.19(A) (3), Exception No. 2. Each wall-mounted oven and each counter-mounted cooking unit must be served by an individual circuit of copper wire. The conductor size is based on 100 percent of the nameplate rating of the unit, but cannot be smaller than size No. 10.

Section 7 prevents dangerous overloading of the oven circuit if a new, larger oven is installed. Because it expands and contracts less, copper has a better safety record. Due to its physical property of expanding and contracting more than copper under the same conditions, aluminum has a record of heating connections, charring insulation near connections, and sometimes coming loose enough to arc and cause fires. Also see Section 14 in regard to copper vs. aluminum.

Section 8.
Section 210.52 (A). Add the following New subsection:
(4) General lighting branch circuits in dwellings must not have more than 12 power-consuming outlets. A duplex receptacle is considered to be one outlet. Smoke detectors are not considered power-consuming devices for

counting purposes.

Section 210.52(B). Add the following paragraph:
A general appliance branch circuit in a dwelling must not have more than eight receptacle outlets. A duplex receptacle is considered to be one outlet.

Section 210.52(E). Add the following sentence:
When an addition is made to an existing dwelling which has no outside ground-fault circuit-interrupter (GFCI) receptacle, a GFCI protected receptacle, accessible at grade level, must be installed on the outside of the new addition.

Section 8 addresses prevention of overloading lighting and receptacle circuits. The intent of 210.52 (E) Outdoor Outlets is to prevent electrocutions from the use of electrical equipment outdoors without gfci protection. But in regard to an addition, there is a "gap in the armor" which this amendment covers.

Section 9.
Section 230.70(A)(1). Add the following:
In new buildings, excluding one and two family dwellings, a shunt trip to disconnect the electrical service to the building shall be provided a follows:

(a) In the Fire Command Center, where a Fire Command Center is in the building.
(b) At the fire alarm annunciator, where there is no :Fire Command Center.
(c) In an appropriately sized and weatherproof fire department access box on the address side of the building, where there is no fire alarm annunciator or Fire Command Center.

In existing buildings, excluding one and two family dwellings, where there are significant upgrades to the building electrical service, such as modifying or replacing the switchgear, a disconnecting means shall be provided as for new installations.

Section 9 is a new amendment added to match the NEC with the requirements of Section **11.1.7 Building Disconnect Access** of NFPA 1 Uniform Fire Code, and in accordance with safe firefighting practices prescribed by the Fire Marshall's Office. A firefighter's life should not be placed in jeopardy traveling down from grade several levels and then into the center of the bottom level in order to de-energize so the fire can be safely fought.

Section 10.
Subsection 230.79 (C). Substitute "150 amperes" for "100 amperes" as the minimum service disconnecting means rating for one-family dwellings.

Given the significant increase in electrical consumption in the typical American home, Section 10 addresses the common problem of 100 ampere services becoming overloaded.

Section 11.
Section 250.50. Add the following text as the first and second sentence to Section 250.50:
All new structures, both residential and commercial, require a concrete encased electrode to be used as the principle

grounding element. The concrete encased electrode shall be installed in accordance with 250.52 (A) (3) and the reinforcing rods and or copper conductors utilized in the installation require a minimum of 0.61mm (2 feet) of accessible length after installation.

A concrete encased electrode has been found to be most reliable form of grounding electrode and must be used as the principle grounding element.

Section 12.
Section 310.5. Delete the first sentence and substitute with the following:
Section 310.5: The minimum size of conductors must be as shown in Table 310.5, except that the minimum size of aluminum and copper-clad aluminum conductors must be No. 2, The use of aluminum conductors is limited to service entrance and feeder applications only.

Note: No exceptions to sizes of wire as enumerated here or elsewhere in the code will be allowed in the case of aluminum conductors.

Section 12's prohibition of aluminum is included for the same reasons given for Section 14 and Section 7:

When compared to aluminum, copper has a significant (1.6 times) ampacity advantage, is easier to install, and is resistant to corrosion.

Because it expands and contracts less, copper has a better safety record. Due to its physical property of expanding and contracting more than copper under the same conditions, aluminum has a record of heating connections, charring insulation near connections, and sometimes coming loose enough to arc and cause fires.

Section 13.
Section 410.16(C). Delete and substitute the following:
410.16(C). Suspended Ceilings. All fixtures installed in suspended ceilings must be supported from the building structure directly. If wire is used for this purpose, no less than 2 separate wires of size No. 12 (or larger) steel must be used. These wires must extend from opposite corners of the fixture with each wire independently attached to the building structure.

Exception: If the fixture is circular, and not more than 24 inches in diameter, at least one wire of No. 12 steel or larger must be used to support the fixture.

Section 13 prevents light fixtures from striking firefighters when they must pull down a drip ceiling in order to get at a fire in the ceiling.

Section 14.

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Section 440.62(C). Delete and substitute the following:
440.62(C). Each individual room air-conditioning unit, regardless of its current rating, must the served by an individual circuit of not less than No. 12 copper wire, and must terminate in a single receptacle.

Section 14 prevents overloading of the air-conditioning circuit. Also, because it expands and contracts less, copper has a better safety record. Due to its physical property of expanding and contracting more than copper under the same conditions, aluminum has a record of heating connections, charring insulation near connections, and sometimes coming loose enough to arc and cause fires.

Section 15.
Section 700.18. Add two new paragraphs as follows:
700.19. Any building in which standpipes are installed must have one 30-ampere, 120-volt circuit installed for each standpipe riser, supplied from the emergency panel. The wiring method for exposed work must be galvanized, threaded metal conduit. Boxes must be metal, weatherproof types with gasketed flap-door covers and threaded hubs. The wiring method for concealed work must be metal conduit with appropriate galvanized boxes having gasketed flap-door covers suitable for fire department use. The weatherproof cover must be suitable for receiving the L5-20R NEMA type twist-lock receptacle without damage (e.g., Bell # 128-226 cover or equivalent).

Supply wiring must be at least 75 degrees C-type wire. One single 20-ampere three-wire twistlock receptacle (NEMA L5-20R) must be installed at least as high as, and with a 2-feet offset from EACH HOSE VALVE CONNECTION. Each outlet box must be painted “fire-alarm red” in color and be marked “Only for Fire Department Use."

Note: This Section supersedes the requirements of Table 210.21(B) (2).

Section 15 is needed by the Fire Department in order to have a **reliable** circuit to connect communications equipment, smoke clearing fans, and other necessary fire fighting electrical equipment.